



11/24

SEQUENCE LISTING

<110> Saltveit, Mikal E.
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Nonogaki, Hiroyuki
Suslow, Trevor
The Regents of the University of California

<120> Characterization of Phenylalanine Ammonia-Lyase (PAL)
Gene in Wounded Lettuce Tissue

<130> 023070-124500US

<140> US 09/964,992

<141> 2001-09-26

<150> US 60/235,956

<151> 2000-09-26

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<170> PatentIn Ver. 2.1

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<213> Lactuca sativa

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(LsPAL1)

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His Leu Asp Glu Val Lys Lys Met Val Ala Glu Phe Arg Lys Pro Val
35 40 45

Val Lys Leu Gly Gly Glu Thr Leu Thr Val Ser Gln Val Ala Gly Ile
50 55 60

Ala Ala Ala Asn Asp Ser Asp Thr Val Lys Val Glu Leu Ser Glu Ala
65 70 75 80

Ala Arg Ala Gly Val Lys Ala Ser Ser Asp Trp Val Met Glu Ser Met
85 90 95

Asn Lys Gly Thr Asp Ser Tyr Gly Val Thr Thr Gly Phe Gly Ala Thr
100 105 110

Ser His Arg Arg Thr Lys Gln Gly Gly Ala Leu Gln Lys Glu Leu Ile
115 120 125

Arg Phe Leu Asn Ala Gly Ile Phe Gly Asn Gly Thr Glu Thr Ser His
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Thr	Leu	Pro	His	Ser	Ala	Thr	Arg	Ala	Ala	Met	Ile	Val	Arg	Ile	Asn	145	150	155	160
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Gly	Thr	Ile	Thr	Ala	Ser	Gly	Asp	Leu	Val	Pro	Leu	Ser	Tyr	Ile	Ala	195	200	205	
Gly	Leu	Leu	Thr	Gly	Arg	Pro	Asn	Ser	Lys	Ala	Val	Gly	Pro	Thr	Gly	210	215	220	
Glu	Val	Leu	Asn	Ala	Glu	Lys	Ala	Phe	Ala	Ala	Ala	Gly	Val	Glu	Gly	225	230	235	240
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Val	Leu	Ala	Leu	Leu	Ser	Glu	Val	Leu	Ser	Ala	Ile	Phe	Ala	Glu	Val	275	280	285	
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Gly	Phe	Lys	Gly	Gly	Glu	Ile	Ala	Met	Ala	Ser	Tyr	Cys	Ser	Glu	Leu	450	455	460	

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 His Asn Gln Asp Val Asn Ser Leu Gly Leu Ile Ser Ala Arg Lys Thr
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 Ser Thr Val Lys Asn Thr Val Ser Gln Val Ala Lys Lys Val Leu Thr
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 Glu Phe Arg Lys Pro Val Val Arg Leu Gly Gly Glu Thr Leu Thr Val
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 Ser Gln Val Ala Ala Ile Ala Ala Ser Asp Asn Ala Gly Val Lys Val
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 85 90 95
 Val Met Glu Ser Met Asn Lys Gly Thr Asp Ser Tyr Gly Val Thr Thr
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 Gly Phe Gly Ala Thr Ser His Arg Arg Thr Lys Glu Gly Gly Ala Leu
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 Gln Lys Glu Leu Ile Arg Phe Leu Asn Ala Gly Ile Phe Gly Asn Gly
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 Thr Glu Ser Thr His Thr Leu Pro His Ser Ala Thr Arg Ala Ala Met
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 Glu Ile Leu Glu Ala Ile Thr Lys Phe Leu Asn His Asn Val Thr Pro
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 Phe Leu Pro Leu Arg Gly Thr Ile Thr Ala Ser Gly Asp Leu Val Pro
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 Met Glu Tyr Ile Leu Asp Gly Ser Asp Tyr Val Lys Ala Ala Gln Lys
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His Leu Asp Glu Val Lys Lys Met Val Gly Glu Phe Arg Lys Pro Val
      35              40              45

Val Lys Leu Gly Gly Glu Thr Leu Thr Val Ser Gln Val Ala Gly Ile
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Ser Ala Ala Gly Asp Gly Asn Met Val Lys Val Glu Leu Ser Glu Ala
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Ala Arg Ala Gly Val Lys Ala Ser Ser Asp Trp Val Met Glu Ser Met
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Asn Lys Gly Thr Asp Ser Tyr Gly Val Thr Thr Gly Phe Gly Ala Thr
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Ser His Arg Arg Thr Lys Asn Gly Gly Ala Leu Gln Lys Glu Leu Ile
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Arg Phe Leu Asn Ala Gly Ile Phe Gly Asn Gly Thr Glu Ser Ser His
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Thr Leu Pro His Ser Ala Thr Arg Ala Ala Met Ile Val Arg Ile Asn
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Thr Leu Leu Gln Gly Tyr Ser Gly Ile Arg Phe Glu Ile Leu Glu Ala
      165             170             175

Ile Thr Lys Phe Leu Asn Asn Asn Ile Thr Pro Cys Leu Pro Leu Arg
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Gly Thr Ile Thr Ala Ser Gly Asp Leu Val Pro Leu Ser Tyr Ile Ala
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Gly Leu Leu Thr Gly Arg Pro Asn Ser Lys Ala Val Gly Pro Ala Gly
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Glu Val Leu Asn Ala Glu Ser Ala Phe Ala Gln Ala Gly Val Glu Gly
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Val	Leu	Ala	Leu	Leu	Ser	Glu	Val	Leu	Ser	Ala	Ile	Phe	Ala	Glu	Val	
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Met	Gln	Gly	Lys	Pro	Glu	Phe	Thr	Asp	His	Leu	Thr	His	Lys	Leu	Lys	
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		435					440					445				
Gly	Phe	Lys	Gly	Gly	Glu	Ile	Ala	Met	Ala	Ser	Tyr	Cys	Ser	Glu	Leu	
	450					455					460					
Gln	Phe	Leu	Ala	Asn	Pro	Val	Thr	Asn	His	Val	Gln	Ser	Ala	Glu	Gln	
465				470						475					480	
His	Asn	Gln	Asp	Val	Asn	Ser	Leu	Gly	Leu	Ile	Ser	Ala	Arg	Lys	Thr	
			485					490						495		
Ala	Glu	Ala	Val	Asp	Ile	Leu	Lys	Leu	Met	Ser	Ser	Thr	Tyr	Leu	Val	
			500					505					510			
Ala	Leu	Cys	Gln	Ser	Ile	Asp	Leu	Arg	His	Leu	Glu	Glu	Asn	Met	Lys	
		515					520					525				
Ser	Thr	Val	Lys	Asn	Thr	Val	Ser	Gln	Val	Ala	Lys	Lys	Val	Leu	Thr	
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rice (Oryza sativa), or wheat (Triticum aestivum)

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1 5

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<213> Artificial Sequence

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annuus), Arabidopsis thaliana, parsley
(Petroselinum crispum), carrot (Daucus carota),
tobacco (Nicotiana tabacum), rice (Oryza sativa),
or wheat (Triticum aestivum)

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